

General Description

The GreenMOS® high voltage MOSFET utilizes charge balance technology to achieve outstanding low on-resistance and lower gate charge. It is engineered to minimize conduction loss, provide superior switching performance and robust avalanche capability.

The GreenMOS® Generic series is optimized for extreme switching performance to minimize switching loss. It is tailored for high power density applications to meet the highest efficiency standards.

Features

- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity



Applications

- PC power
- LED lighting
- Telecom power
- Server power
- EV Charger
- Solar/UPS

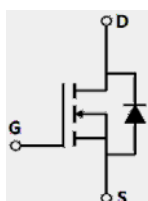
Key Performance Parameters

Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	600	V
$I_D, pulse$	120	A
$R_{DS(ON)}, max @ V_{GS}=10V$	92	m
Q_g	38.6	nC

Marking Information

Product Name	Package	Marking
OSG55R092FF	TO220F	OSG55R092F

Package & Pin Information



Maximum Ratings at $T_j=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	550	V
Gate-source voltage	V_{GS}	± 30	V
Drain current ¹⁾ , $T_C=25^\circ\text{C}$	I_D	40	A
Drain current ¹⁾ , $T_C=100^\circ\text{C}$		25	
Peak drain current ²⁾ , $T_C=25^\circ\text{C}$	$I_{D,pulse}$	120	A
Diode forward current ¹⁾ , $T_C=25^\circ\text{C}$	I_S	40	A
Diode peak current ²⁾ , $T_C=25^\circ\text{C}$	$I_{S,pulse}$	120	A
Power dissipation ³⁾ , $T_C=25^\circ\text{C}$	P_D	34	W
Maximum avalanche energy ⁵⁾	E_{AS}	770	mJ
dv/dt ruggedness, $V_{DS}=0\dots 480\text{ V}$	dv/dt	50	V/ns
Diode dv/dt, $V_{DS}=0\dots 480\text{ V}$, $I_{SD} = I_D$	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R_{JC}	3.7	$^\circ\text{C}/\text{W}$
Thermal resistance, junction-ambient ⁴⁾	R_{JA}	62.5	$^\circ\text{C}/\text{W}$

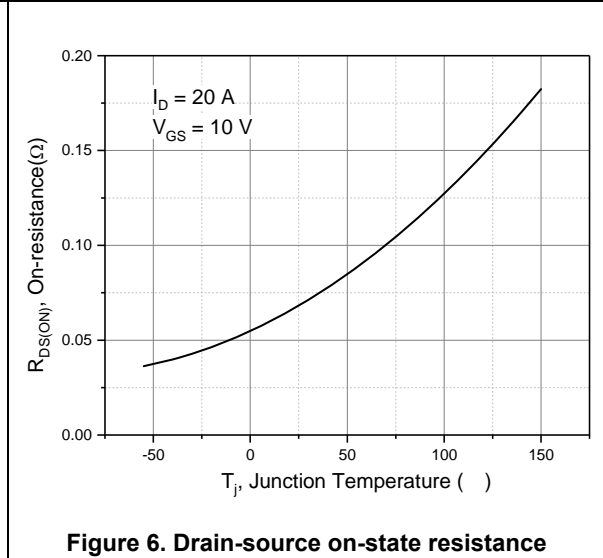
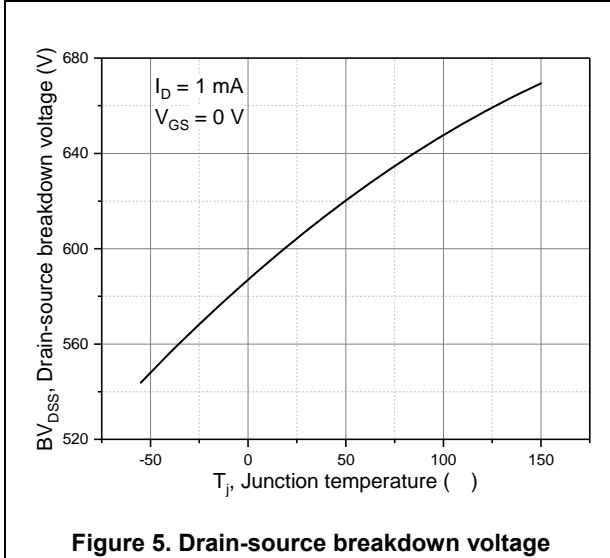
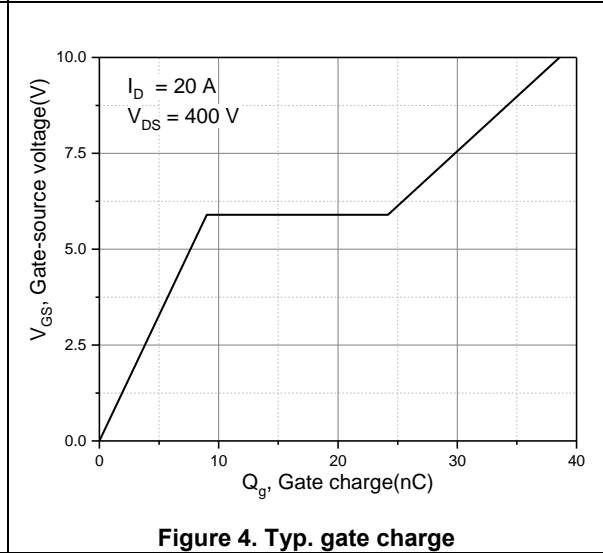
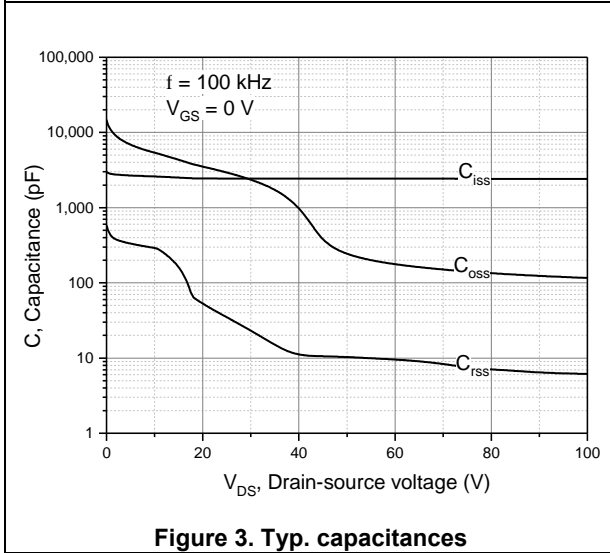
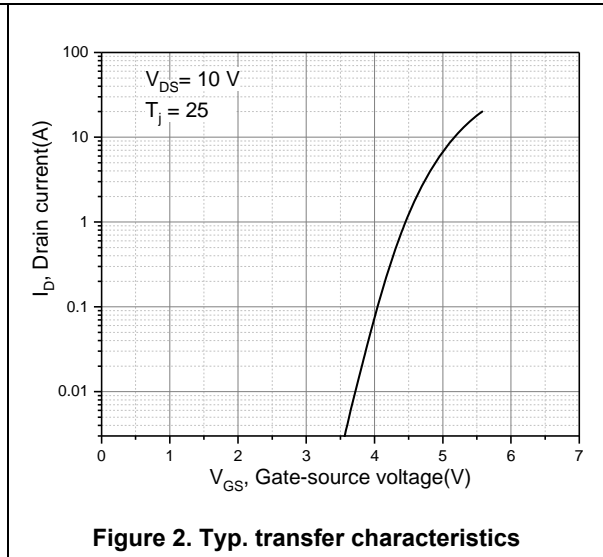
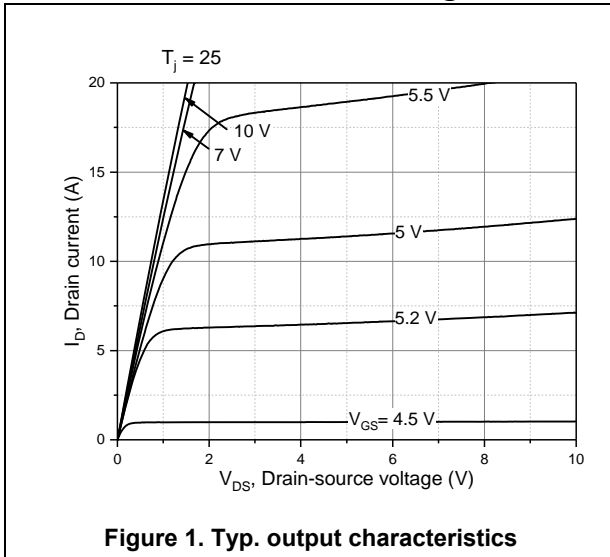
Electrical Characteristics at $T_j=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
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Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
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Electrical Characteristics Diagrams



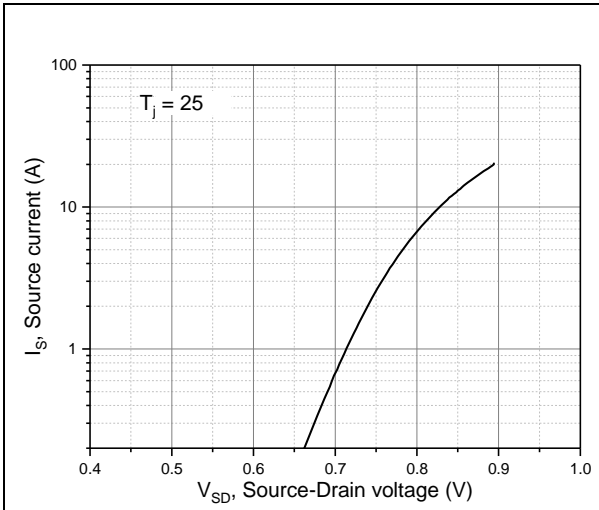


Figure 7. Forward characteristic of body diode

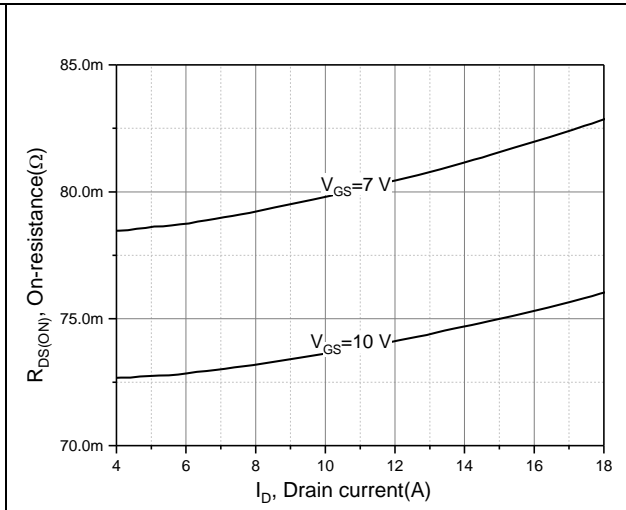


Figure 8. Drain-source on-state resistance

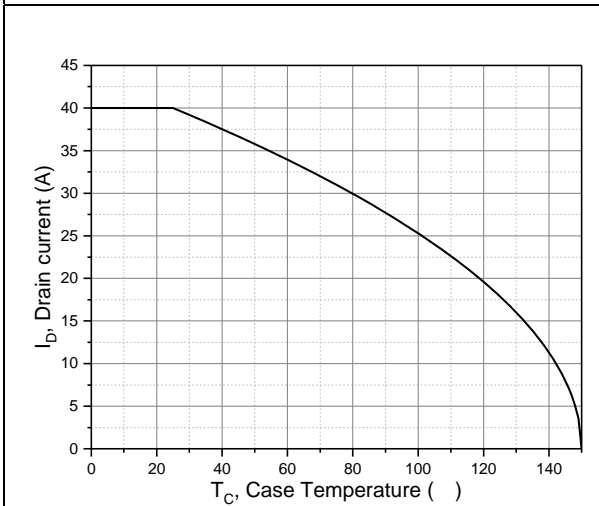


Figure 9. Drain current

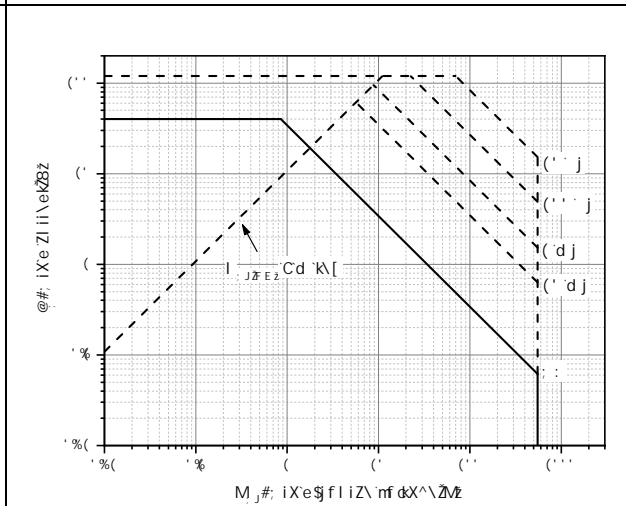


Figure 10. Safe operation area Tc=25 °C

Test circuits and waveforms

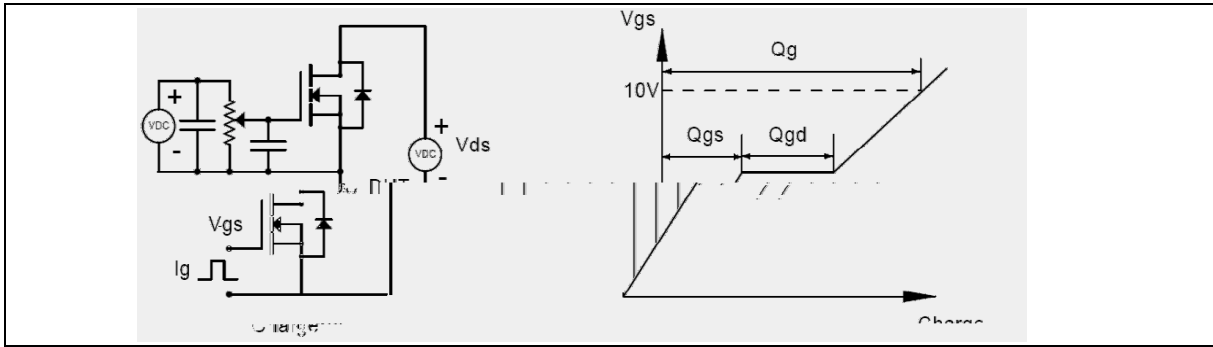


Figure 1. Gate charge test circuit & waveform

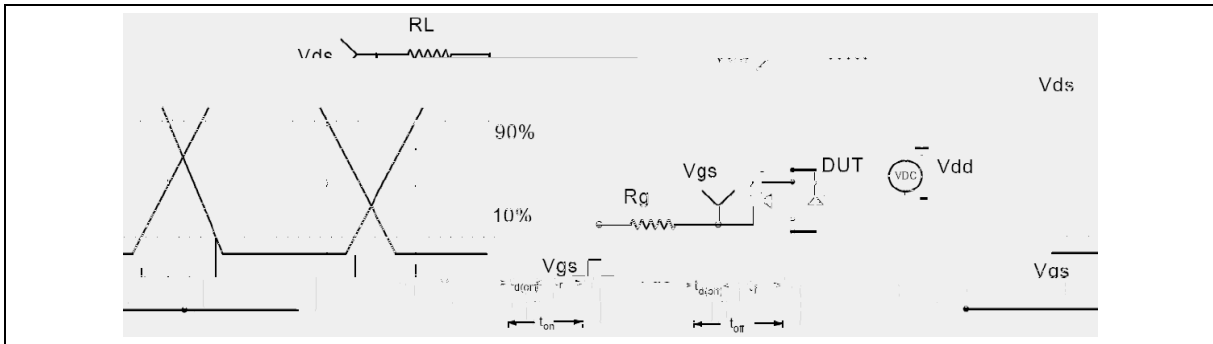


Figure 2. Switching time test circuit & waveforms

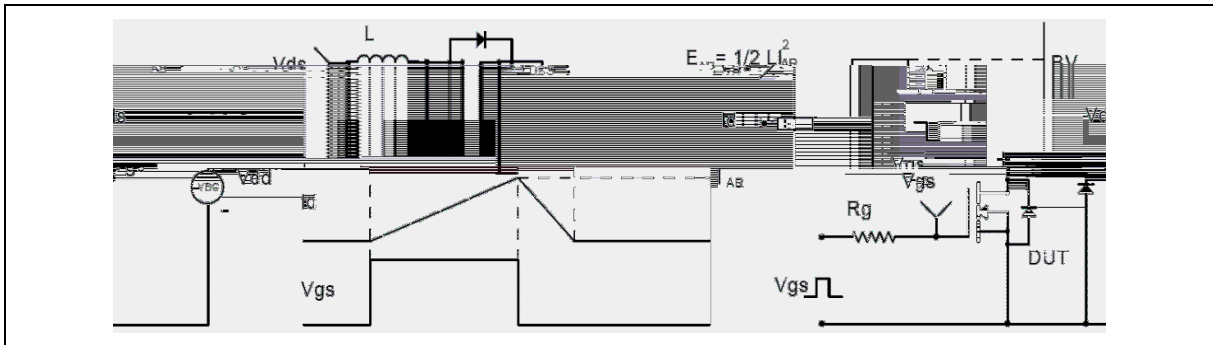


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

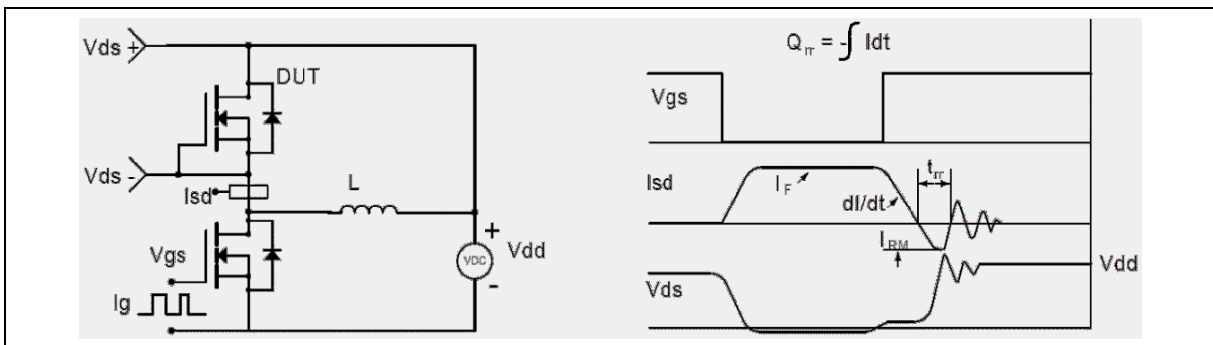
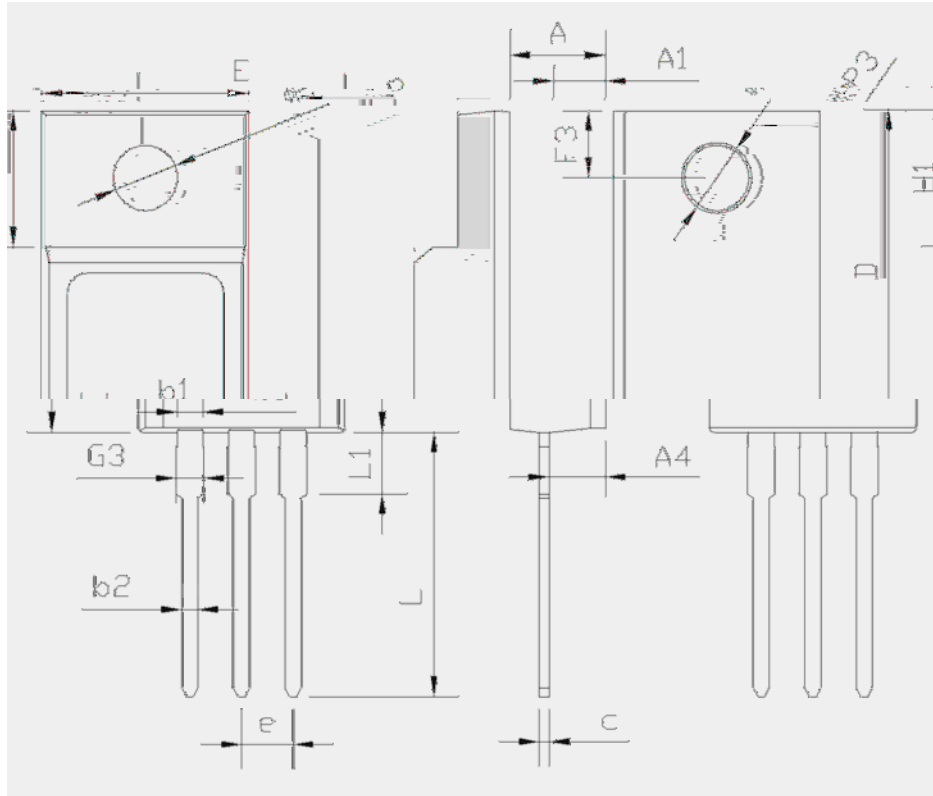


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
E	9.96	10.16	10.36
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A4	2.56	2.76	2.96
c	0.40	0.50	0.65
D	15.57	15.87	16.17
H1	6.70 REF		
e	2.54 BSC		
L	12.68	12.98	13.28
L1	2.88	3.03	3.18
P	3.03	3.18	3.38
P3	3.15	3.45	3.65
F3	3.15	3.30	3.45
G3	1.25	1.35	1.55
b1	1.18	1.28	1.43
b2	0.70	0.80	0.95

Version 1:TO220F-C package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220F-C	50	20	1000	6	6000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG55R092FF	TO220F	yes	yes	yes

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